

Apple Everyone Can Code

Curriculum Guide

Looping All the Sides

Goal: Use a `for` loop to repeat a sequence of commands.

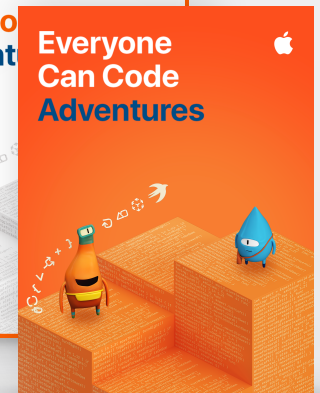
In this puzzle, you must collect four gems that are located in the same relative locations around a square. You'll create a `loop` that repeats the code below for each of the sides to solve the entire puzzle.

- 1 Select `for` in the shortcut bar to add a `for` loop into your code.
- 2 Press the bottom curly brace to select the loop.
- 3 Press and hold the curly brace, then drag it downward to pull the existing code into the loop.

```
for i in 1 ... number {  
  moveForward()  
  collectGem()  
  moveForward()  
  moveForward()  
  moveForward()  
  turnRight()  
}
```

0/4

Run My Code Hint



Teaching Code with Apple

When you teach code, you're not only teaching the language of technology. You're teaching new ways to think and bring ideas to life. And coding with Swift, Apple's powerful, intuitive and easy-to-learn programming language, provides students fun and engaging ways to prepare for the future. Every student should have the opportunity to create something that can change the world. Whether students are just getting started with Swift Playgrounds on iPad or ready to learn Xcode on Mac, Apple provides everything educators need to bring code into the classroom.



Code Curriculum Pathway

The Everyone Can Code and Develop in Swift curricula take students all the way from writing their first lines of Swift code to building their first apps. The table below provides an overview of the core, free teaching and learning resources available.

Student	Teacher	Device	Audience	App	Prerequisites	Overview	Lesson hours	
Everyone Can Code								
Everyone Can Code Puzzles				Year 5 and up	Swift Playgrounds 	None	Students learn foundational coding concepts, such as loops, variables and functions. They practise and apply their skills in a variety of ways, from puzzles to open-ended playgrounds.	45 hours
Everyone Can Code Adventures				Year 5 and up	Swift Playgrounds 	Everyone Can Code Puzzles	Students learn more advanced code concepts, such as event handling, advanced arrays and component-based design as they scope and build their own projects.	45 hours
Develop in Swift								
Intro to App Development with Swift				Secondary school and up	Xcode 	None	Students get practical experience with the tools, techniques and concepts needed to build a basic iOS app from scratch.	90 hours
App Development with Swift				Secondary school and up	Xcode 	None	Students build a foundation in Swift, UIKit and networking through hands-on labs and guided projects. By the end of the course, students can build an app of their own design.	180 hours

Everyone Can Code

Everyone Can Code introduces students to the world of coding through interactive puzzles, playful characters and activities for both in and outside the classroom. Helpful guides integrate creativity, collaboration and problem solving. They also provide real-world examples of coding concepts that illustrate how code is used in everyday life. Using the free Swift Playgrounds app on iPad, students can learn and experiment with real Swift code, the same programming language used by professionals to build powerful apps.



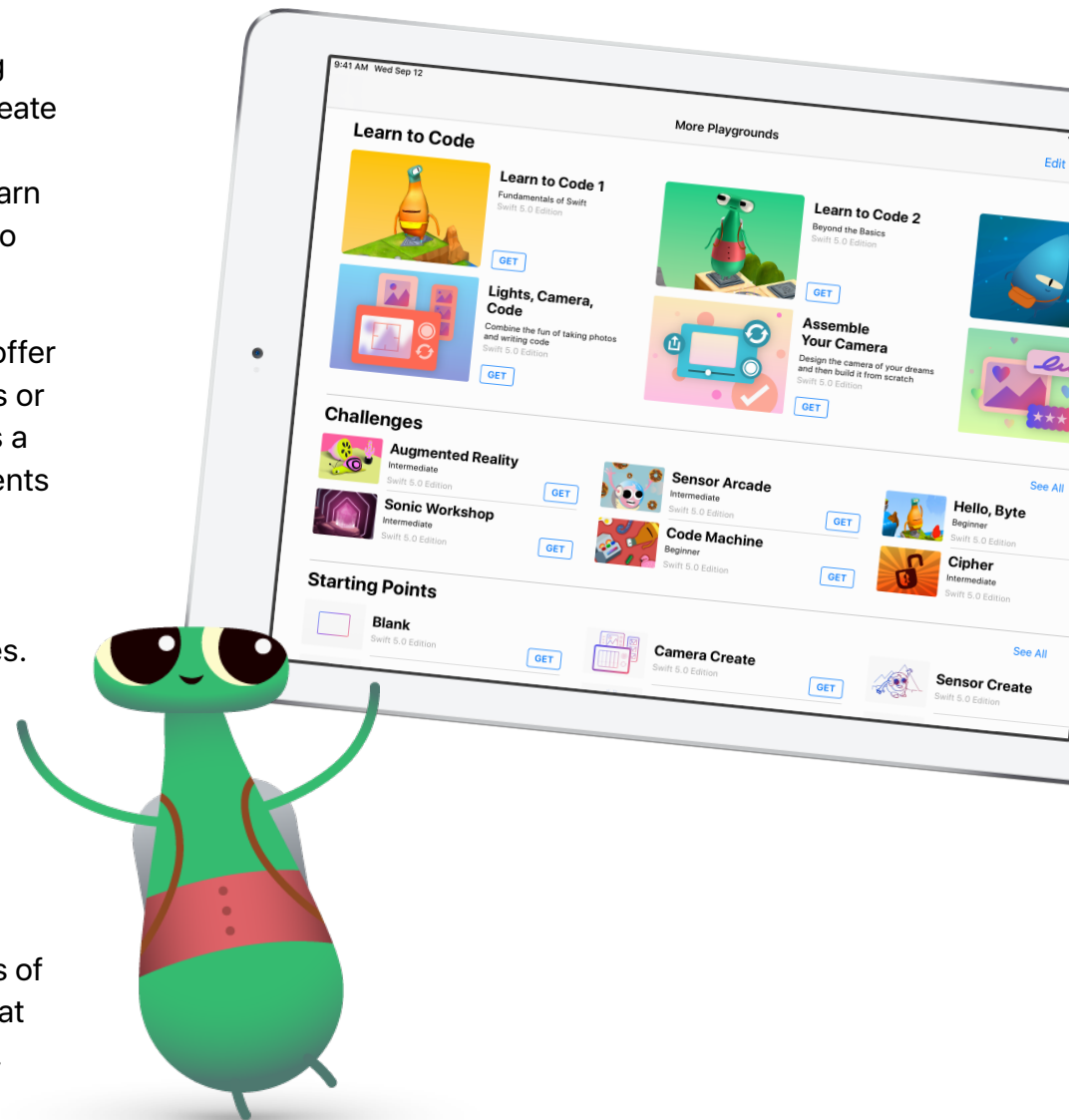
Curriculum Overview

The comprehensive Everyone Can Code curriculum introduces students to core coding concepts using the Swift programming language. Students use real Swift code to solve puzzles and create projects in the fun, interactive Swift Playgrounds app. The app comes with a complete set of Apple-designed lessons called Learn to Code, as well as additional coding challenges and playgrounds to program robots and connected devices.

Everyone Can Code includes teacher and student guides that offer flexible, engaging lessons designed for hour-long class periods or to be taught across a whole semester. Each chapter introduces a coding concept through a familiar context, then supports students in solving puzzles with confidence in Swift Playgrounds. They apply their skills to creative coding projects in a range of playgrounds and reinforce their learning by considering how coding concepts shape digital technology in their everyday lives.

The teacher guide is designed to support all teachers – with or without coding experience. It provides inclusive learning experiences, assessment ideas and tips to support a range of learners.

And if you can't bring it into your school day, or if you want to explore just a piece of this to get started, we've provided a series of modules in our Swift Coding Club kits that leverage all these great resources in a fun and approachable way for out-of-school time.



Explore Swift Playgrounds

Real Swift, real iOS code. At the heart of Swift Playgrounds is the same Swift programming language that's used to build many of the leading apps in the App Store today.

Interactive environment. Create code on the left side of the screen and instantly see the results on the right, with just a tap.

Touch to edit. Drag complex structures that wrap other code, such as loops and function definitions, around existing code. Just touch the keyword (such as "for") and the drag controls appear onscreen.

Shortcut bar. QuickType suggestions for code appear at the bottom of the screen that let students enter the code they need by just tapping the shortcut bar.

Built-in glossary. Definitions help students understand specific terms.

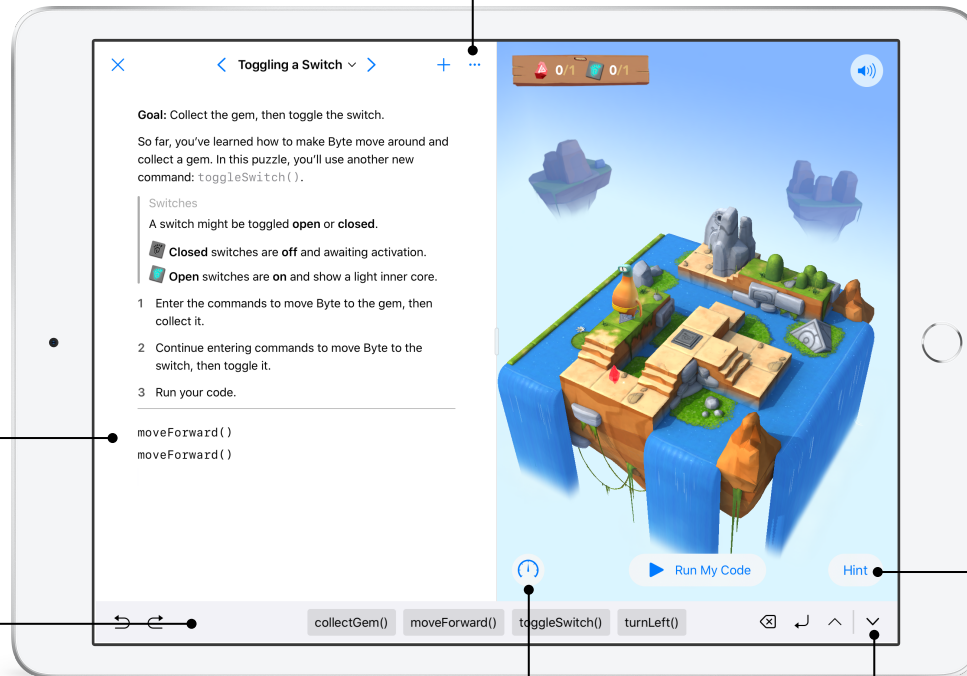
Record and share. Students can record what they do onscreen to demonstrate their work.

Immersive animations. Each section starts with an immersive animation that relates coding concepts to real life, aiding in student understanding.

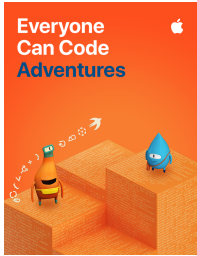
Accessibility. Swift Playgrounds was designed with accessibility in mind from day one. It takes advantage of the many powerful accessibility features of iOS, including Switch Control and VoiceOver, and even provides additional voice commentary on the actions of characters as students control them with code.

Helpful hints. Students can get help along the way if they get stuck. In many cases, hints change dynamically as they enter code.

Onscreen keyboard. A keyboard designed for Swift provides quick access to the numbers and symbols most commonly used in Swift code.



Review code. Run code faster or slower, or step through it to highlight the lines of code as they execute, making it easier for students to identify where errors might occur.



Everyone Can Code Adventures

Coming Soon

Everyone Can Code Adventures is designed for students in year 5 and up after they've completed *Everyone Can Code Puzzles*. The guide opens up opportunities to build with Swift Playgrounds. Approximately 45 hours of hands-on activities let students experiment with hardware features and event-driven programming to express their creative ideas through code. Each chapter covers content in the Swift Playgrounds app, including Sensor Arcade, Blu's Adventure, Sonic Workshop and Augmented Reality. Students also learn about the design process through an integrated App Design Journal that they use throughout the course as they build up to the final project.

Chapter 1: Coordinates (3 hours). Students learn about coordinate systems and review variables, as well as types with properties and methods. Students demonstrate their learning by placing items such as text and images into a view using coordinates.

Chapter 2: Events and Handlers Part 1 (3 hours). Students learn about the basics of event handling by examining touch events. They review functions with parameters as they add code to make their images and text interactive.

Chapter 3: Arrays (4 hours). To continue learning event functionality, students review and extend their understanding of arrays. Students learn new operators and methods they can use with arrays. They also review some array functionality, operators and nested for loops.

Chapter 4: Events and Handlers Part 2 (3 hours). Students extend their understanding of events by learning what kinds of arguments can be passed into an event handler function. They examine the many kinds of input available to them through iPad device hardware.

Chapter 5: Closures (4 hours). Students explore how to use functions as arguments within another function with closures. This extension of events supports them as they dive into Augmented Reality.

Chapter 6: Return Types and Outputs (2 hours). Students examine how to use a function to return a specific type. Until this point students have used functions to package procedures and now they can create a type that can be used in other parts of a program.

Chapter 7: Classes and Components (4 hours). Students investigate the basics of components and how to piece them together to create something new. Students will use design thinking and review types. Students will learn about classes, which are a way to group and organise data in a program.

Chapter 8: Design Patterns (9 hours). Students examine many different ways of designing program architecture. They evaluate how to scope a program, use their strengths to pick an artefact to build, and decide which tools best fit their goals. Students learn how to design for patterns, including games, simulations and models, or prototyping a user experience design.

Chapter 9: Summative Projects (10 hours). Students scope out and plan their own summative project. They select the type of project that best demonstrates their learning, then explain the various skills they used and why the playground starting point was the best choice for their project.

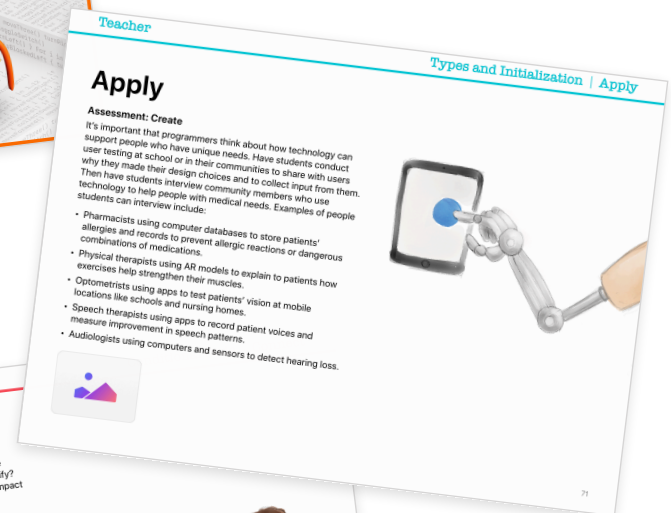
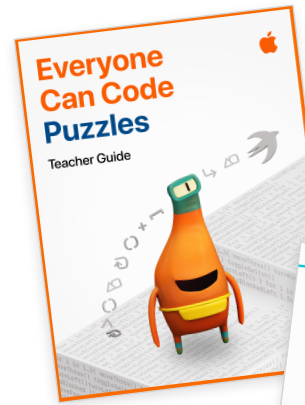
Everyone Can Code Support Materials

Teaching code isn't just about teaching the language of technology. It's also about teaching logic, creativity, problem-solving, collaboration, and communication – critical skills for the future. As students explore the lessons, they're learning key concepts in computer science, while also learning to appreciate the power of code for designing an equitable, inclusive future.

Everyone Can Code Puzzles Teacher Guide

This guide not only supports educators in confidently teaching code, but also emphasises elements that can deepen student learning:

- **Real-world engagement:** Each lesson uses real-world examples to show students how coding concepts can apply to everyday situations.
- **Communication and creation:** Activities encourage students to create drawings, presentations, music and more to capture their thinking and showcase their work.
- **Teamwork:** The activities are designed with flexibility so students can complete them in small groups. In some, they create a shared product and use joint reasoning to achieve the best results.
- **Critical thinking:** Completing the activities requires students to analyse, interpret, synthesise, evaluate and generate solutions.
- **Personalised learning:** The flexible materials are also designed to maximise student choice and address various skill levels. Helping language and useful analogies help teachers explain challenging concepts.



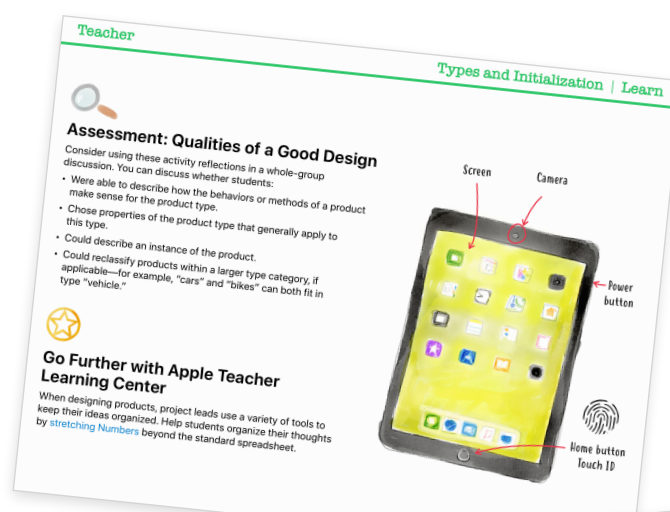
The teacher guide also provides assessment ideas for each section of the chapter. The ideas include tips on key behaviours to observe during class activities, indicators of understanding as evidenced in student explanations and descriptions of how students can apply their understanding of coding concepts in creative projects.

App Design Journal

Students can use the App Design Journal to apply the app design process to solve problems in their school or community. The journal prompts students to brainstorm, plan, prototype and evaluate their own app ideas, culminating in a pitch presentation of the app prototype. [Download the App Design Journal >](#)

App Showcase Guide

Encourage students to share their coding achievements with the broader community through community events, such as project demonstrations or app showcases. The App Showcase Guide provides practical support to help you plan and host a showcase event. [Download the App Showcase Guide >](#)



Inclusive Curriculum

At Apple, we believe that everyone should have the opportunity to create something that can change the world. For educators who teach students with disabilities, we've made accessible resources to extend coding to all students.

Accessible Guides

The Everyone Can Code student and teacher guides are optimised for VoiceOver and include closed-caption videos and audio descriptions. Each lesson has been designed to include accessible content, activities and practice sessions to help bring coding to life for all learners.

Swift Playgrounds and VoiceOver Instructional Videos

Teachers and students can watch instructional videos from the Hadley Institute for the Blind and Visually Impaired to help them get started using Swift Playgrounds with VoiceOver. Learn how to download Swift Playgrounds, orient to the puzzle worlds, use custom rotor actions, enter code and solve a simple puzzle.

[View the collection of videos here >](#)

Swift Playgrounds Tactile Puzzle Worlds

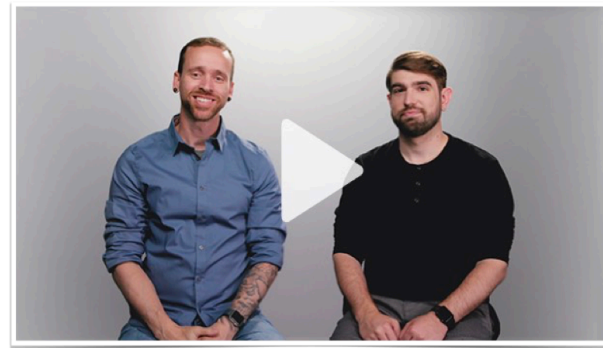
Tactile Puzzle Worlds provide Unified English Braille, large-print text and embossed graphics to help students who are blind or have low vision navigate the coding puzzles in Swift Playgrounds. Teachers can print the tactile graphics with their own braille embossers or order printed copies. Download Tactile Puzzle Worlds below for PDF versions of the tactile graphics and instructions on how to print or order copies for your students.

[Download Tactile Puzzle Worlds >](#)

Coding Concepts in American Sign Language

Accessible videos in American Sign Language support Deaf students in learning to code. With closed captions and text transcripts, they're designed for everyone to understand and enjoy. The Puzzles teacher guide includes a range of American Sign Language videos that explain coding concept.

[View the collection of videos here >](#)



Swift Coding Clubs

Swift Coding Clubs give everyone the opportunity to learn and write code. Designed for an informal setting, Swift Coding Clubs are a great way to introduce code to your school or provide opportunities for students to take their interests further.

The Swift Coding Club's modular design makes it perfect for first-time coders, as well as for those with more experience. Club activities built around Swift foster collaboration and creative problem solving. Each 12-session module includes a project-based activity where students use their skills to design, build, test and share something that's uniquely theirs.

Club materials include cool Swift Coding Club posters, T-shirt designs, stickers and certificates to help club leaders build interest and create a club identity. Clubs are encouraged to hold community events or app showcases to celebrate students' achievements and grow the coding community. [Download the Swift Coding Club kit >](#)



Teaching Code Additional Information

Download the Swift Playgrounds resources

- [Everyone Can Code Puzzles](#)
- [Everyone Can Code Puzzles Teacher Guide](#)
- [Swift Playgrounds app](#)

Learn more about Develop in Swift resources

- [Develop in Swift Curriculum Guide](#)
- [Teaching Code Collection on Apple Books](#)

Additional resources

- Learn more about the [Everyone Can Code program](#).
- Get [App Development with Swift Level 1 certification](#).
- Import App Development with Swift into your Canvas instance.
- Import AP[®] Computer Science with Swift into your Canvas instance.

About Swift

Swift is the powerful and intuitive programming language created by Apple for building apps. Swift is not only great for getting you started with coding, it's also super powerful. It's designed to scale from writing the simplest program, like "Hello, world!", to the world's most advanced software. Learn more about [Swift](#).

About Xcode

Xcode is the Mac app used to build every other Mac app and every iOS app too. It has all the tools you need to create an amazing app experience. And it's available as a [free download](#) from the Mac App Store. Learn more about [Xcode](#).

Apple Professional Learning

Apple Professional Learning Specialist offerings are organised into multiple-day engagements over a period of time and are designed to provide:

- Leadership visioning and planning to help administrators prioritise learning objectives.
- Guidance from an Apple Professional Learning Specialist who's dedicated to your project.
- Customised, research-based professional learning plans to match learning goals.
- Hands-on, immersive learning experiences to help faculty develop innovative instructional practices that engage students.
- An opportunity to work with your professional learning leaders to build sustainability.

Let Apple Professional Learning Specialists help provide your faculty with the best personal support for innovating their instructional practices in ways that will engage students and enable personalised learning.

To learn more, contact your Apple account executive or send an email to apls@apple.com.

